<u>THEORY OF THREE LEVELS OF JUDGMENT</u>

In the theory of three levels of judgment, there are (you guessed it) three levels of judgment which taken together form a case: L0, L1, and L2.

The basic idea is that the uppermost level, level 2 (L2), is a judgment *about what the case is really about.* For example: "this deal is satisfactory," "the dark bathroom tiles are the best," "it's safe to surf this beach," are contrived examples.

The middle level, level 1 (L1), is composed of one or more judgments about the major subjects which serve as grounds for the L2 judgment. If the L2 judgment happened to be "this deal is satisfactory," perhaps the L1 judgments are "the interest rate is great" and "the payment schedule is fine."

The lowest level, level 0 (L0), is composed of judgments about features or major subcomponents of an L1 judgment. Perhaps the L1 judgment is "the interest rate is great" as above. In a simple case the directly preceding L0 judgment could be "the interest rate is the prime rate."

So there is a simple hierarchy appearing in the case. The judgments are given in a simple sequence to the engine within a single case. For example, judgments submitted in this order:

EXAMPLE CASE

L0 judgment about a feature or major part of the first subject
L0 judgment about a feature or major part of the first subject
L0… {repeat}
    L1 judgment about the first subject serving as grounds for the judgment about the case
L0 judgment about a feature or major part of the second subject
L0 judgment about a feature or major part of the second subject
L0 judgment about a feature or major part of the second subject
L0 … {repeat}
    L1 judgment about the second subject serving as grounds for the judgment about case
L0 … {repeat as desired subsequent n subjects...}
    L1 judgment about the nth subject serving as grounds for the judgment about the case
        L2 judgment about the case

The L2 judgment is what the case is really *about,* L1 judgments are judgments about the major, crucial subjects supporting the L2, and L0 judgments are about features or major subcomponents of L1s.

In the simplest case, only an L0 and L1 are required (bare minimum case). In the simplest case there is only a judgment about a single subject.

An L2 must have at least one preceding and subordinate L1, and an L1 must have at least one preceding and subordinate L0.

An evaluation of the case can be made if there is at least one L1 judgment. If desired, there is a retract call available for any judgment at any level. So you can retract propositions and add as you need and

call the server for evaluation as many times as necessary, as the case is built in stages or whenever desired as long as there is at least one L1 proposition.

The metaphysics of this structure warrants some consideration. The basic intuition is that L0 judgments should be (close to) *objective* judgments about what *appears* in reality, about what is ideally confirmable by the senses and typically everybody would agree on. That is why **only** the L0 judgment can include terms relating to *appearance.*

Get yourself a cup of coffee or favorite beverage and philosophize about this structure for a little while.

With only three levels and a lot of variations and a lot of data much can be said about reality. Not everything, perhaps, but a lot.

L0 is a confirmable judgment about reality taken as true. It is taken as an objective judgment, which implies that everybody should agree about it. If an L0 judgment is "the waves are on average four feet high" we should all agree. L1 has an subjective component. Are such waves the right condition for surfing? Maybe. Maybe not. Maybe it depends on experience and preference. But the point is that the L1 is a judgment based upon the L0. Suppose the L2 judgment, what the case is *about,* is "it's safe to surf this beach."

The L1 and L2 judgments are not expected to be strictly objective. A main goal of the engine is to learn "concepts" from the training cases to be applied to new, novel cases at the L1 and L2 levels, thus retaining a degree of subjectivity.

Naturally you might be wondering: what happens if I want to reuse the content of some case in a different variation, or perhaps use the case within some hierarchy, or use the case as a part of a more expansive sequence of cases? This would seem to be a problem if we only have three levels. At this point, the engine cannot form new cases by merging prior or concurrent cases, however the three-level-judgment structure will support this eventually: L0 appearance terms are rolled up the heirarchy to L1 and L2 judgments in the present code, so it is a matter of extracting from some prior case a relevant L1 or L2 judgment and inserting it into a new case – but rebranding and reusing an L1 or L2 judgment(s) as a new L0 judgment(s) in a new case. The system is still grounded because initial L0 judgments with appearance are de facto grounding judgments (assuming truth maintenance and sensation updating are also built).

In the above fashion cases can be eventually combined. This general scheme captures some of the structure of cognition in that an "idea" could be seen as an entity which transitions by adding and merging cases as new sensations and goals become available. An "idea" does not need to be static but rather an assemblage of dynamic cases at any time yielding a single judgment as a focal point, consistent with the structure I envision in my book "Approximation Zero" (available under the documentation page), an "idea" being defined as a single integrated totality of cases (L0/L1/L2).

With only three levels and a lot of variations and a lot of data and a lot of merging much can be said about reality. Not everything, perhaps, but a lot. Concepts and ideas emerge. For now, though, the engine is limited to a single case at a time in the present (although it does use the entire stock of data to learn).